ORIGINAL

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK

AUDIOVOX CORPORATION,

Plaintiff,

v.

MONSTER CABLE PRODUCTS, INC.,

Defendant.

Civil Action No.

CV 07 4622

WEXLER, J.

GO ORENSTEIN, M.J.

COMPLAINT

Plaintiff, Audiovox Corporation, ("Audiovox" or "Plaintiff") for its Complaint against Defendant Monster Cable Products, Inc. ("Monster" or "Defendant"), alleges as follows:

JURISDICTION AND VENUE

1. Audiovox's claims for a declaratory judgment of non-infringement and invalidity of U.S. Patent No. 4,910,360 (the "'360 Patent") and U.S. Trademark Registration No. 1,647,907 (the "'907 Registration") are brought pursuant to the Federal Declaratory Judgment Act. This Court has subject matter jurisdiction over these claims under the Federal Declaratory Judgment Act, 28 U.S.C. §§ 2201-2202, the Patent Laws of the United States, 35 U.S.C. §100 *et. seq.*, the Trademark Act of 1946, as amended, 15 U.S.C. § 1051 *et. seq.*, and 28 U.S.C. §§ 1331 and 1338.

2. Venue is proper in this Court under 28 U.S.C. §§ 1391(c) and 1400(b).

3. This Court has personal jurisdiction over Defendant in that it does business within the State of New York and in this District.

THE PARTIES

4. Plaintiff Audiovox is a corporation, organized and existing under the laws of Delaware, with its principal place of business in this district located at 180 Marcus Boulevard, Hauppauge, New York, 11788.

5. On information and belief, Defendant Monster is a corporation organized and existing under the laws of California with its principal place of business located at 455 Valley Drive, Brisbane, California 94005.

FACTUAL BACKGROUND

6. Audiovox is a renowned distributor of consumer electronics products, including but not limited to, automobile sound systems, home audio/video products, televisions and accessories, two-way radios, DVD players, automobile navigation systems, automobile security systems and remote starters, audio speakers and speaker wire.

7. Audiovox is distributing in this judicial district, under its brand name ACOUSTIC RESEARCH®, electrical speaker wire including model nos.: PR 262 Pro II Series, PR 220, and PR 221 for use in connecting audio and home entertainment products, such as electronic amplifiers, to audio loudspeakers.

8. Monster is distributing in this judicial district audio and visual cables, cable adapters, speaker cables, audio and digital cable connectors and splitters, and other consumer electronic products.

9. Audiovox and Monster are competitors in the field of consumer electronic accessory products, and in this instance, audio speaker wire, in this judicial district.

10. Monster has asserted ownership of U.S. Pat. No. 4,910,360, issued on March 20, 1990 to Noel Lee, for "Cable Assembly Having an Internal Dielectric Core Surrounded by a Conductor" (Exhibit A attached hereto). The '360 Patent expires on January 5, 2009. Audiovox denies that its ACOUSTIC RESEARCH® brand electrical speaker wire, including model nos. PR 262 Pro II Series, PR 220, and PR 221, infringes any valid and/or enforceable claim of the '360 Patent.

11. On February 9, 2007 Monster, through its counsel, sent a threatening ultimatum letter to Patrick M. Lavelle, President and Chief Executive Officer of Audiovox Corporation, accusing Audiovox of infringing the '360 Patent and U.S. Patent Nos.: 4,743,712; 4,777,324; 4,937,401; and 4,933,513, with respect to Audiovox's ACOUSTIC RESEARCH® brand

electrical speaker wire bearing model nos.: PR 262 Pro II Series, PR 220, and PR 221. The letter demands that Audiovox "cease and desist from further sales of infringing products" (Exhibit B attached hereto).

12. On April 18, 2007, Audiovox filed suit in this District for a declaratory judgment of non-infringement of each of the asserted Monster Patents. The Action was assigned to the Honorable Judge Joanna Seybert under Civil Action No. CV-07 1604 (Complaint attached hereto as Exhibit C).

13. Audiovox did not formally serve the Summons and Complaint on Defendant but rather sent a courtesy copy to Defendant's counsel. At Monster's request, Audiovox dismissed the Complaint without prejudice on June 26, 2007 in order to allow the parties to discuss the matter in a more amicable atmosphere. As a condition to Audiovox's dismissal of its Complaint, Monster agreed by letter dated June 8, 2007 (Exhibit D attached hereto) not to file suit in any jurisdiction against Audiovox without providing at least fourteen (14) days written notice.

14. Subsequently, Monster wrote to Audiovox's counsel on August 2, 2007 and advised that it wanted to discuss the '360 Patent and that it was "not asserting the other patents against Audiovox, based on the information currently available to us" (Exhibit E attached hereto).

15. The parties subsequently discussed certain positions and Monster repeatedly requested that Audiovox enter into a license with Monster. Audiovox contends that it does not infringe the '360 Patent and therefore a license is not necessary. On October 22, 2007, Monster wrote to Audiovox's counsel and provided Audiovox with the agreed fourteen (14) day notice in that Monster stated that it would "not feel bound to refrain from filing suit after November 5, 2007, if there is no further progress in our discussions." Monster's said October 22, 2007 letter also raised for the first time the allegation that Audiovox's products infringe the trademark covered by the '907 Registration (Exhibit F attached hereto).

16. As a result of Monster's accusations of infringement in the ultimatum letter of February 9, 2007 (Exhibit B) and Monster's letter dated October 22, 2007 (Exhibit F) indicating

that it will not feel bound to refrain from filing suit after November 5. 2007, Audiovox has and continues to have reasonable apprehension that Monster will file suit for infringement of the '360 Patent and the '907 Registration.

COUNT I

(Declaratory Judgment of Non-Infringement of the '360 Patent)

17. As set forth in Paragraph 11 above, on February 9, 2007 Monster, through its counsel, sent a threatening ultimatum letter to Patrick M. Lavelle, President and Chief Executive Officer of Audiovox Corporation, accusing Audiovox of infringing on a number of Monster's patents, including the '360 Patent, with respect to Audiovox's ACOUSTIC RESEARCH® brand electrical speaker wire bearing model nos.: PR 262 Pro II Series, PR 220, and PR 221. Furthermore, as discussed in paragraph 15 above, Monster indicated in its October 22, 2007 letter to Audiovox's counsel that it would not feel bound to refrain from filing suit after November 5, 2007. Accordingly, an actual and continuing controversy has arisen and continues to exist between Defendant, on the one hand, and Audiovox, on the other hand, as to whether or not Audiovox has directly infringed, contributed to the infringement of, or induced the infringement of, any valid and/or enforceable claim of the '360 Patent.

18. Audiovox has not infringed and is not now infringing, contributorily infringing or inducing infringement of the '360 Patent, either literally or under the doctrine of equivalents.

19. Accordingly, Audiovox requests a declaration from this Court that Audiovox has not infringed and is not now infringing, contributorily infringing or inducing infringement of the '360 patent, either literally or under the doctrine of equivalents.

COUNT II

(Declaratory Judgment of Invalidity of the '360 Patent)

20. As described in paragraph 11 above, on February 9, 2007 Monster contacted Audiovox by letter and accused Audiovox of infringing the '360 patent. Furthermore, as discussed in paragraph 15 above, Monster indicated in its October 22, 2007 letter to Audiovox's counsel that it would not feel bound to refrain from filing suit after November 5, 2007.

Accordingly, an actual and continuing controversy has arisen and continues to exist between Monster and Audiovox as to the validity of each of the claims of the '360 patent.

21. Upon information and belief, the '360 Patent, and each of the claims thereof, are invalid and void for failure to meet the conditions of patentability as set forth in the provisions of the Patent Laws, 35 U.S.C. §§ 100 *et. seq.*, including but not limited to, one or more of 35 U.S.C. §§ 101, 102, 103 and/or 112.

22. Accordingly, Audiovox requests a declaration from this Court that each of the claims of the '360 patent is invalid for failure to comply with the provisions of the Patent Laws, 35 U.S.C. §§ 100 *et. seq.*, including but not limited to, one or more of 35 U.S.C. §§ 101, 102, 103 and/or 112.

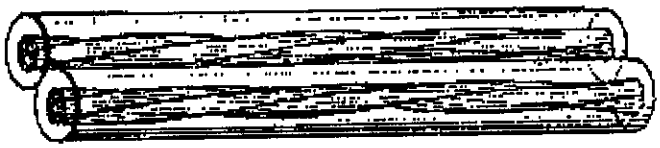
COUNT III

(Declaratory Judgment of Non-Infringement and Invalidity of U.S. Trademark Registration No. 1,647,907)

23. As set forth in Paragraph 15 above, on October 22, 2007 Monster, through its counsel, sent a letter to counsel for Audiovox alleging that Audiovox infringes the '907 Registration with respect to Audiovox's ACOUSTIC RESEARCH® brand electrical speaker wire. Accordingly, an actual and continuing controversy has arisen and now exists between Defendant, on the one hand, and Audiovox, on the other hand, as to whether or not Audiovox infringes the '907 Registration.

24. Defendant, in its aforesaid October 22, 2007 letter, alleges that Audiovox infringes the '907 Registration because Audiovox's ACOUSTIC RESEARCH® brand speaker wire purportedly has "a pair of stranded, twisted copper conductors enclosed by a transparent cylindrical insulation." (*See*, Exhibit F).

25. The '907 Registration claims that "the mark consists of a pair of stranded copper conductors each twisted in a rope lay and enclosed by transparent cylindrical insulation" as depicted below:



A copy of the '907 Registration is attached hereto as Exhibit G.

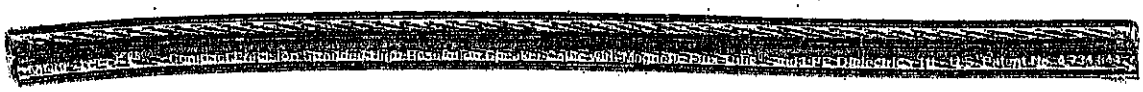
26. Upon information and belief, the purported design mark depicted above is generic and functional in that the elements comprising the mark ("a pair of stranded copper conductors each twisted in a rope lay" configuration "enclosed by transparent cylindrical insulation") are functional and utilitarian and, as such, are devoid of any trademark significance in that this product configuration is never capable of functioning as an indicia of source and/or quality. Moreover, the mark depicted in Monster's '907 Registration is not capable of acquiring secondary meaning given the functionality of the purported mark, and *de facto* evidence of secondary meaning, if any, is irrelevant.

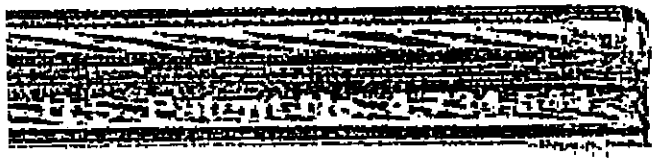
27. Upon information and belief, the elements comprising the mark depicted in the '907 Registration render the purported mark functional for many reasons including, without limitation, the fact that these elements are subject to both expired and subsisting utility patents which constitute strong evidence of the functionality and generic nature of the mark which is the subject of the '907 Registration.

28. Upon information and belief, the salient element claimed in the '907 Registration – the pair of stranded copper conductors each twisted into a rope lay -- are functional in that this element has utility as described in expired U.S. Patent No. 4,734,544 (the "'544 Patent"), issued

to Monster's principal, Noel Lee, on March 29, 1988 (Exhibit H attached hereto) and the '360 Patent (*See*, Exhibit A).

29. In fact, one of Defendant's speaker cables currently marketed under and in connection with Monster's purported design mark is prominently marked: "U.S. Patent No. 4,734,544" as more particularly depicted below:





30. The twisted pair wire/rope lay configuration is described and depicted in detail in the '544 Patent. In this regard, Figure 1 depicts the twisted pair wire/rope lay configuration as follows:

U.S. Patent Mar. 29, 1988 4,734,544

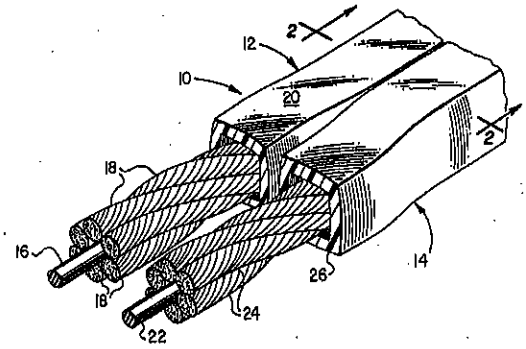


FIG. 1

The twisted pair/rope lay configuration and the utility thereof was further described in the specification as follows:

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a signal cable in which a plurality of bundles of wire strands are provided which carry the signal and which surround a dielectric core.

It is a further object of the present invention to provide a signal cable of the above type in which the bundles of wire strands are twisted into a rope-lay configuration and wrapped around the dielectric core.

It is a still further object of the present invention to provide a cable assembly formed by two cables of the above type which is relatively flexible and thus easy to handle and install.

Toward the fulfillment of these and other objects, the cable of the present invention includes a plurality of bundles of wire strands, twisted into a rope-lay configuration, wrapped around a dielectric core and disposed within an insulation.

Finally, the rope lay configuration is accomplished in the manner described in a portion of the only claim of the '544 Patent. To wit, claim 1 states in pertinent part:

> "...a plurality of bundles of wire stands of conductive material twisted around said dielectric material for collectively carrying said positive signal, the wire stands forming each bundle being twisted in a first direction and the bundles being twisted around said dielectric material in a direction opposite said first direction; and
> insulation means extending around said bundles of wire stands..."

31. The twisted pair wire/rope lay configuration is also described and depicted in the '360 Patent. In this regard, Figure 1 is almost identical to Figure 1 of the '544 Patent (See, Exhibit A - the difference being the core, which is irrelevant for purpose of the trademark

claims). Although the "Summary of the Invention" for the '360 Patent differs, at least independent claim 1 of the '360 Patent accomplishes the twisted pair/rope lay configuration in the same manner described in the '544 Patent.

32. In light of at least the reasons set forth above, Monster's purported design mark depicted in the '907 Registration is functional/generic and the claimed design elements cannot and do not function as a trademark. Accordingly, Audiovox has not and does not infringe the purported design mark, the '907 Registration is invalid and Audiovox and the public are free to use the utility of these elements in the construction of speaker cables.

33. Accordingly, Audiovox requests a declaration from this Court that it has not infringed and is not now infringing the '907 Registration, and a further declaration that the '907 Registration is invalid.

COUNT IV

(Declaratory Relief – Violation of 15 U.S.C. § 1119)

34. Upon information and belief, Defendant Monster fraudulently represented to the United States Patent and Trademark Office ("USPTO") that the mark which is the subject of the '907 Registration was not subject to any utility patent.

35. The application which matured into the '907 Registration was filed by Monster on November 18, 1987 by the same attorney that prosecuted the '544 and '360 Patents. In the first Office Action issued by the USPTO Examining Attorney on February 24, 1988, the Examiner refused registration of the mark on functionality grounds because the "proposed mark consists of a design feature of the identified goods which serves a utilitarian purpose." The Examining Attorney requested Monster to indicate whether the proposed mark is the subject of either a design or utility patent and, if so, to provide all information concerning the patent.

36. The '544 Patent issued to Monster's principal, Noel Lee, on March 29, 1988.

37. On August 24, 1988, Monster's Counsel of record (the same counsel that prosecuted the '544 Patent) responded to the February 24, 1988 Office Action and indicated that the "proposed mark in not the subject of either a design or utility patent."

38. On January 5, 1989, Monster filed the application that matured into the '360 Patent. Notably absent from the specification for the said application was the description of the "wire strands twisted into a rope-lay configuration" that was present in the specification of the earlier issued '544 Patent.

39. The '360 Patent issued on March 20, 1990. The USPTO Examining Attorney continued the refusal to register the Monster's proposed mark on functionality grounds. At the time, the USPTO used the *de jure* and *de facto* functionality tests (this test is not currently used by the USPTO) in reaching its determination to reject Monster's proposed mark. Defendant Monster claimed that its proposed mark was not *de jure* functional but that it was at least *de facto* functional. If Monster's proposed mark was held by the USPTO to be *de jure* functional, it would not be entitled to registration. If however the mark was held by the USPTO to fall under the ambit of *de facto* functionality, Monster could submit proof of secondary meaning and attempt to obtain registration under Section 2(f) which is what Monster ultimately succeeded in doing.

40. Among the factors considered in determining *de jure* functionality is whether there exists a utility patent that discloses the utilitarian advantages of the design. On October 22, 1990, Monster's counsel once again indicated in a response to the USPTO Examining Attorney that "[t]here is no utility patent that discloses any utilitarian advantages of Applicant's cable configuration."

41. Monster's aforesaid affirmative statements to the USPTO Examining Attorney concerning the non-existence of any utility patent pertaining to Monster's proposed design mark were willfully and knowingly false and misleading, as was Monster's omission of not disclosing the existence of the '544 and '360 Patents and the contents thereof to the Examining Attorney.

42. The aforesaid false statements were material in the procurement of the '907 Registration in that, were it not for the false statements and omissions of material fact, the USPTO would not or should not have issued the '907 Registration, a fact that jeopardizes the validity of the '907 Registration.

43. Monster was aware that its representations were false.

44. In reliance on Monster's false representations, the USPTO approved Monster's application for a registered trademark.

45. These acts constitute fraud upon the USPTO, in violation of 15 U.S.C. §1119.

COUNT V

(Declaratory Relief – Violation of 15 U.S.C. § 1120)

46. Monster representations concerning the non-existence of any utility patent pertaining to Monster's proposed design mark were willfully and knowingly false and misleading, as was Monster's omission of not disclosing the existence of the '544 and '360 Patents and the contents thereof to the Examining Attorney.

47. Monster willfully and knowingly made the aforesaid false statements to the USPTO regarding material facts in the procurement of its trademark, which jeopardize the validity of its trademark registration.

48. Monster was aware that its representations were false.

49. In reliance on Monster's false representations, the USPTO approved Monster's application for a registered trademark.

50. Due to Monster's fraudulent representations to the USPTO in the procurement of its trademark registration, Audiovox has suffered harm.

51. The injuries sustained by Audiovox as a consequence of Monster's actions give rise to a claim under 15 U.S.C. § 1120.

DEMAND FOR JURY TRIAL

52. Plaintiff requests a jury trial under Fed. R. Civ. P. 38 on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for the following relief against Defendant:

1. For a declaratory judgment by this Court finding and declaring that:

(a) Audiovox has not infringed and is not now infringing, contributorily infringing or inducing infringement of the '360 Patent, either literally or under the doctrine of equivalents;

(b) Each of the claims of the '360 patent is invalid for failure to comply with the provisions of the Patent Laws, 35 U.S.C. §§ 100 *et. seq.*, including but not limited to one or more of 35 U.S.C. §§ 101, 102, 103 and/or 112; and

(c) U.S. Registration No. 1,647,907 is invalid and not infringed by Audiovox.

2. For such other amounts as may be proper under 35 U.S.C. §§ 100 *et seq.*;

3. For an order of the cancellation of U.S. Registration No. 1,647,907;

4. For reasonable attorneys fees and costs;

5. For prejudgment interest as permitted by law; and

6. For such other and further relief as the Court deems just and proper.

Dated: November 5, 2007

GREENBERG TRAURIG LLP

By: _____

Michael A. Nicodema (MN 2949)
Gaston Kroub (GK 6970)
Barry J. Schindler (BS 0056)
200 Park Avenue
New York, N.Y. 10166
Tel.: (212) 801-9200
Fax: (212) 801-6400

Robert S. Levy
LEVY, STOPOL & CAMELO, LLP
1425 Rexcorp Plaza
Uniondale, New York 11556-1425
Tel.: (516) 802-7007
Fax: 516-802-7008

Attorneys for Plaintiff, Audiovox Corporation

EXHIBIT A

United States Patent [19]

Lee

[11] Patent Number: 4,910,360

[45] Date of Patent: Mar. 20, 1990

[54] **CABLE ASSEMBLY HAVING AN INTERNAL DIELECTRIC CORE SURROUNDED BY A CONDUCTOR**

[76] Inventor: Noel Lee, 47 W. Park Dr., Daly City, Calif. 94015

[21] Appl. No.: 293,642

[22] Filed: Jan. 5, 1989

[51] Int. Cl.[4] H01B 7/08

[52] U.S. Cl. ..... 174/117 F; 174/113 C; 174/115; 174/131 A

[58] Field of Search ..... 174/113 C, 131 A, 117 F, 174/117 R, 115

[56] References Cited

U.S. PATENT DOCUMENTS

2,014,214	9/1935	Smith	174/34
2,193,429	3/1940	McConnell	174/131 A
2,216,340	10/1940	Elliott	174/103
2,286,827	6/1942	Morrison	174/115
2,302,839	11/1942	Burgett	174/113 C
2,309,439	1/1943	Burgett	174/113 C
2,455,773	12/1948	Johnson	174/117 R
2,509,894	5/1950	Toulmin et al.	174/128 R
2,581,472	1/1952	Dudley et al.	174/117 F
2,584,027	1/1952	Kendrick	174/113 G
2,658,014	11/1953	Morrison	174/113 R
2,953,627	9/1960	Malnefitch et al.	174/102 R
2,998,840	9/1961	Davis	174/113 C
3,032,604	5/1962	Timmons	174/115
3,211,821	10/1965	Wakefield	174/26 R
3,291,891	12/1966	Sharp	174/36
3,324,233	6/1967	Bryant	174/131 R
3,355,544	11/1967	Costley et al.	174/106 R
3,413,799	12/1968	LeJeune	57/217
3,465,092	9/1969	Schwartz	174/78
3,584,139	6/1971	Swanson	174/103
3,602,632	8/1971	Ollis	174/36
3,624,276	11/1971	Rawlins et al.	174/129 R
3,634,607	1/1972	Coleman	174/113 R X
3,644,659	2/1972	Campbell	174/36 X
3,772,454	11/1973	Donecker et al.	174/113 R
3,773,109	11/1973	Eberline	174/115 X
3,784,732	1/1974	Whitfill	174/108
3,789,130	1/1974	Parker	174/115
3,816,644	6/1974	Giffel et al.	174/115
4,025,715	5/1977	Foley et al.	174/36
4,028,660	6/1977	Pitts, Jr.	174/115 X
4,358,636	11/1982	Iiff et al.	174/103
4,449,012	5/1984	Voser	174/117 F X
4,461,923	7/1984	Bogese, II	174/36
4,486,623	12/1984	Ploppa	174/113 R
4,538,023	8/1985	Brisson	174/115
4,677,256	6/1987	Bauer et al.	174/116
4,731,506	3/1988	Lee	174/117 F X
4,734,544	3/1988	Lee	174/117 F
4,743,712	5/1988	Lee	174/113 C
4,767,890	8/1988	Magnan	174/115 X
4,777,324	10/1988	Lee	174/115 X

FOREIGN PATENT DOCUMENTS

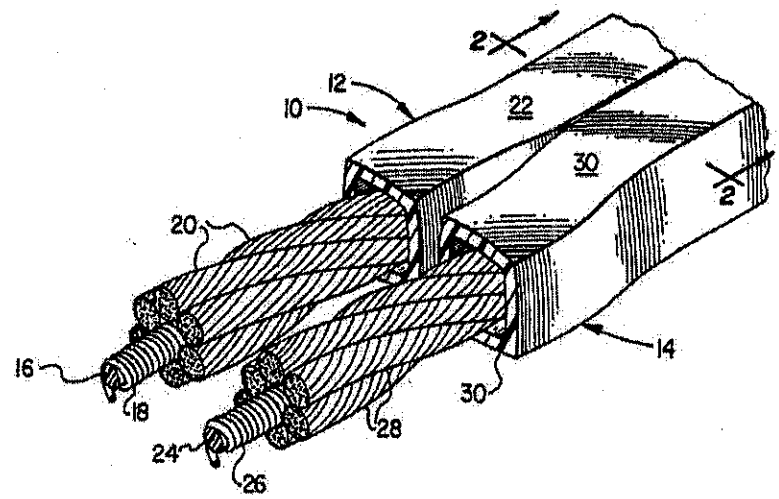
1465554	8/1964	Fed. Rep. of Germany .	
2900302	5/1979	Fed. Rep. of Germany .	
1472221	1/1967	France .	
1377922	2/1988	U.S.S.R.	174/113 C

Primary Examiner—Morris H. Nimmo
Attorney, Agent, or Firm—Warren B. Kice

[57] ABSTRACT

A cable assembly in which a pair of cables are provided to carry the positive and negative signals between a power source and a load. Each cable consists of a conductor wrapped around a dielectric core, and a plurality of bundles of wire strands are twisted around the wrapped dielectric core. The wire strands forming each bundle are twisted in a first direction and the bundles are twisted around the solid conductor in a direction opposite the first direction. Insulation extends around the bundles of wire strands.

23 Claims, 1 Drawing Sheet



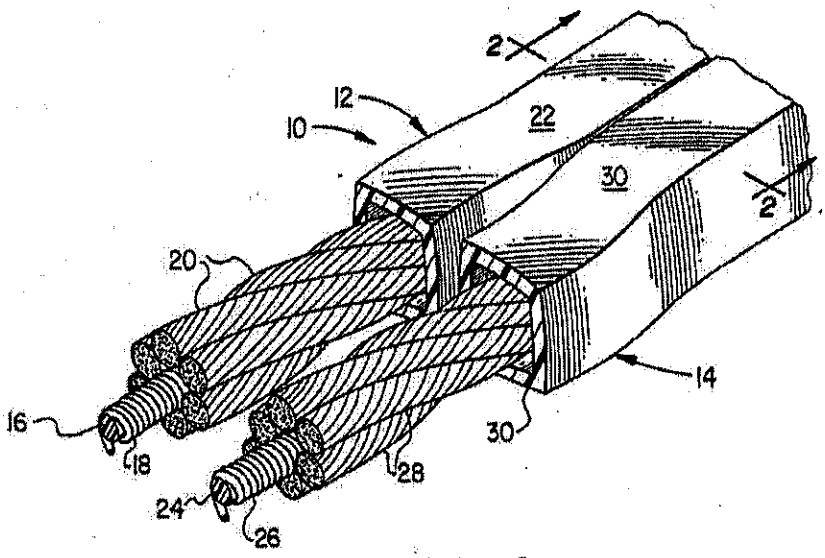


FIG. 1

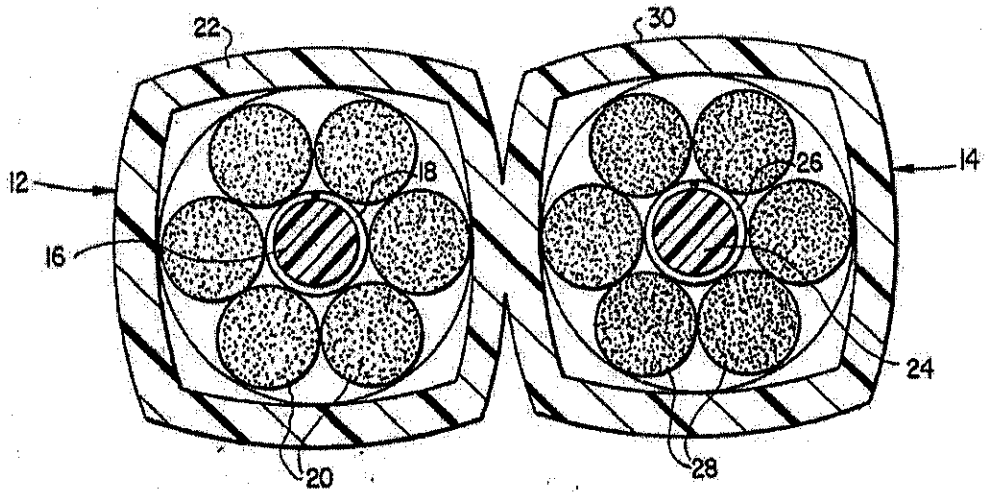


FIG. 2

CABLE ASSEMBLY HAVING AN INTERNAL DIELECTRIC CORE SURROUNDED BY A CONDUCTOR

BACKGROUND OF THE INVENTION

This invention relates to a cable assembly for transmitting an electrical signal between a power source and a load.

Various types of cables have been used to transfer electrical current between a power source and a load. For example, the signal from an audio amplifier is transmitted by a cable to a loudspeaker for producing a replica of a signal from a program source that is introduced to the amplifier. However, there is much controversy as to the optimum type of cable that should be used in these types of environments.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a signal cable assembly in which a plurality of wire strands are provided which carry the signal.

It is a further object of the present invention to provide a cable assembly of the above type in which the wire strands are grouped into bundles and wrapped around a dielectric core.

It is a further object of the present invention to provide a cable assembly of the above type in which a conductor is wrapped around the dielectric core.

It is a still further object of the present invention to provide a cable assembly of the above type which is relatively flexible and easy to handle and install.

Toward the fulfillment of these and other objects, the cable assembly of the present invention includes a plurality of bundles of wire strands wrapped around a dieleotric core around which is wrapped a conductor.

DESCRIPTION OF THE DRAWINGS

The above brief description, as well as further objects, features and advantages of the present invention will be more fully appreciated by reference to the following detailed description of the presently preferred but nonetheless illustrative embodiment in accordance with the present invention when taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a partial perspective view depicting the signal cable assembly of the present invention, with the insulation being removed from the end portions thereof for convenience of presentation; and

FIG. 2 is a cross-sectional view taken along the line 2—2 of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring specifically to the drawings the reference numeral 10 refers in general to the signal cable assembly of the present invention which comprises a first cable 12 extending in a juxtaposed, parallel relationship to a second cable 14.

The cable 12 is formed by a central, solid, rod-like dielectric core 16 arund which is wound a single conductor 18. Six bundles 20 of wire strands are twisted about the wrapped core 16 and, as shown by the curved lines, the wire strands forming each bundle 20 are twisted in a direction opposite that of the direction of twist of the bundles around the wrapped core 16.

An insulating sleeve 22 extends around the bundles 20, is fabricated of an insulating material, such as plastic or rubber, and has a substantially rectangular cross section.

In a similar manner, the cable 14 comprises a dielectic core 24 about which is wrapped a conductor 26. Six bundles 28 of wire strands are twisted around the wrapped core 24 in a direction opposite to that of the twist of the wire strands forming each bundle. An insulating sleeve 30 extends around the twisted bundles 28.

The cores 16 and 24 are fabricated from a dielectric material such as polypropylene, and the conductors 18 and 26, as well as the wire strands forming the bundles 20 and 28, are formed of a current carrying material, such as copper. The conductors 18 and 26 can be of a relatively thick gauge such as 20 gauge (AWG) while the wire strands forming the bundles 20 and 28 are of a relatively thin gauge such as 36 gauge (AWG). According to a preferred embodiment, each bundle 20 and 28 consists of approximately forty-eight strands. The conductors 18 and 26 are wound around their respective cores 16 and 24, while the strands of each bundle 20 and 28 are wound around their respective wrapped cores. The bundles 20 and 28, in turn, are wound around their respective wrapped cores 16 and 24.

As shown in FIG. 2 the insulating sleeves 22 and 30 are disposed in a juxtaposed, parallel relationship with their corresponding sidewall portions being molded together. The lengths of the conductors 18 and 26 and the wire strands forming the bundles 20 and 28 are approximately the same.

In FIG. 1, the insulating sleeves 22 and 30 of the cables 12 and 14, respectively, have been removed from the end portions of cables to show the uninsulated end portions of each cable which are connected to a power source and/or load. Also, the lengths of the wrapped cores 16 and 24 have been extended in FIG. 1 to better depict their features.

The conductor 18 and the bundles 20 together function as one cable and, as such, are connected together as a single cable to the power source or load. Similarly, the conductor 26 and the bundles 28 together function as a single cable. Since the dielectric cores 16 and 24 are nonconductive they are not connected to the power source or load.

One of the cables 12 or 14 can carry the positive signal and the other can carry the negative signal with the respective uninsulated ends of the conductors and wire strands being connected, as a single cable, via conventional connectors, such as spade lugs, banana plugs, or the like, to the positive and negative terminals of the power source and load.

Although not shown in the drawings, as an alternative embodiment, it is understood that the conductors 18 and 26 can be surrounded by insulation.

There are several advantages to the cable assembly of the present invention. For example, the dielectic cores 16 and 24 function to break up deliterious magnetic forces that would otherwise be present as a result of currents passing through the wire strands forming the bundles 20 and 28. Also, the larger gauge conductors 18 and 26 aid in properly transmitting the lower frequencies of the signal, and the opposite twisting of the wire strands forming each bundle 20 and 28 adds flexibility to each cable 12 and 14.

Other modifications, changes and substitutions are intended in the foregoing disclosure and, in some instances, some features of the invention can be employed without a corresponding use of other features. Accord-

ingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention therein.

What is claimed is:

1. A signal cable assembly comprising a pair of cables adapted to respectively carry the positive and negative signals between a power source and a load; each cable comprising a dielectric core, a single conductor wrapped around said core, a plurality of bundles of uninsulated wire strands extending around said wrapped core, the wire strands forming each bundle being twisted in a first direction and the bundles of each cable being twisted around their respective cores in a direction opposite said first direction, and insulating means extending around each cable, the conductor and the wire strands of each cable being connected as a single unit between a power source and a load.

2. The assembly of claim 1 wherein said dielectric core is in the form of an elongated, rod-like, solid dielectric material extending for the entire length of its respective cable.

3. The cable of claim 1 wherein the length of each conductor is approximately equal to the length of each wire strand.

4. The cable assembly of claim 1 wherein said cables are disposed in a juxtaposed parallel relationship with their respective insulation means being molded together.

5. The assembly of claim 1 wherein said bundles are uninsulated.

6. A signal cable assembly comprising a pair of cables adapted to respectively carry the positive and negative signals between a power source and a load; each cable comprising a dielectric core, a single conductor wrapped around said core, a plurality of bundles of uninsulated wire strands extending around said wrapped core, each conductor being greater than the diameter of each wire strand, and insulation means extending around each cable, the conductor and the wire strands of each cable being connected as a single unit between a power source and a load.

7. The assembly of claim 6 wherein said dielectric core is in the form of an elongated, rod-like, solid dielectric material extending for the entire length of its respective cable.

8. The cable of claim 6 wherein the length of each conductor is approximately equal to the length of each wire strand.

9. The cable assembly of claim 6 wherein said cables are disposed in a juxtaposed parallel relationship with their respective insulation means being molded together.

10. The assembly of claim 6 wherein said single conductor is uninsulated.

11. The assembly of claim 6 wherein said uninsulated wire strands are in contact with said single conductor.

12. The assembly of claim 6 wherein said bundles are uninsulated.

13. A signal cable assembly comprising a pair of cables adapted to respectively carry the positive and negative signals between a power source and a load; each cable comprising a dielectric core, an uninsulated single conductor wrapped around said core, a plurality of bundles of uninsulated wire strands extending around said wrapped core, and insulation means extending around each cable, the conductor and the wire strands of each cable being connected as a single unit between a power source and a load.

14. The assembly of claim 13 wherein said dielectric core is in the form of an elongated, rod-like, solid dielectric material extending for the entire length of its respective cable.

15. The cable of claim 13 wherein the length of each conductor is approximately equal to the length of each wire strand.

16. The cable assembly of claim 13 wherein said cables are disposed in a juxtaposed parallel relationship with their respective insulation means being molded together.

17. The assembly of claim 13 wherein said uninsulated wire strands are in contact with said single conductor.

18. The assembly of claim 9 wherein said bundles are uninsulated.

19. A signal cable assembly comprising a pair of cables adapted to respectively carry the positive and negative signals between a power source and a load; each cable comprising a dielectric core, a single conductor wrapped around said core, a plurality of bundles of uninsulated wire strands extending around said wrapped core and in contact with said single conductor, and insulation means extending around each cable, the conductor and the wire strands of each cable being connected as a single unit between a power source and a load.

20. The assembly of claim 19 wherein said dielectric core is in the form of an elongated, rod-like, solid dielectric material extending for the entire length of its respective cable.

21. The cable of claim 19 wherein the length of each conductor is approximately equal to the length of each wire strand.

22. The cable assembly of claim 19 wherein said cables are disposed in a juxtaposed parallel relationship with their respective insulation means being molded together.

23. The assembly of claim 6 wherein said bundles are uninsulated.

* * * * *

EXHIBIT B

LaRiviere, Grubman & Payne, LLP

LGP LaRiviere Grubman & Payne

Ronald E. Grubman, Ph.D., J.D.
Of Counsel

Monterey Office:
19 Upper Ragsdale Drive
Suite 200
Post Office Box 3140
Monterey CA 93942
Phone: (831) 649-8600
Fax: (831) 649-8695
www.lgpmlaw.com

San Jose Office:
(408) 294-0800

February 9, 2007

VIA FACSIMILE (631) 434-3995 AND U.S. MAIL

Mr. Patrick M. Lavelle
President, CEO
Audiovox Corp.
180 Marcus Boulevard
Hauppauge, NY 11788

Re: Monster Cable Patents and Acoustic Research Accessories Speaker Wire

Dear Mr. Lavelle:

We represent Monster Cable Products, Inc. in its intellectual property enforcement matters.

It has come to our attention that Acoustic Research Accessories division is selling products under the Acoustic Research brand which are covered by the claims of one or more of Monster Cable's patents. We enclose a copies of US Patent nos. 4,743,712; 4,777,324; 4,910,360; 4,973,401; and 4,933,513 for your reference. There are corresponding foreign patents.

We believe the claims of one or more of these patents cover several of Audiovox's products, including: Acoustic Research's PR 262 Pro II Series, Acoustic Research PR 220 speaker wire, and Acoustic Research PR 221 speaker wire.

For example, with reference to Monster's claim 13 of the '360 patent cited above, it appears that the Acoustic Research wire products comprises a signal cable assembly with pairs of cables comprising a dielectric core with a plurality of bundles of wire strands extending around the core and with insulation around the pairs of cables. Similar analysis would apply to some or all of the remaining patents.

Mr. Patrick M. Lavelle
Re: Acoustic Research Products
February 9, 2007

On Monster Cable's behalf we ask that you cease and desist from further sales of infringing products. Please review these matters and get back to us within fourteen days of the date of this letter, with your response. We look forward to receiving your complete cooperation to resolve these matters amicably and promptly.

Sincerely,

LARIVIERE, GRUBMAN & PAYNE, LLP

Robert W. Payne

RWP:et
Enclosures
cc: Client

EXHIBIT C

CV - 07 1604

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NEW YORK

SEYBERT, J.

IN CLERK'S OFFICE
U.S. DIST. COURT E.D.N.Y.
★ APR 18 2007 ★
LONG ISLAND OFFICE

TOMLINSON, M

AUDIOVOX ELECTRONICS CORPORATION,

Plaintiff,

v.

MONSTER CABLE PRODUCTS, INC.,

Defendant.

CIVIL ACTION

NO. _____

COMPLAINT

AND

DEMAND FOR JURY TRIAL

COMPLAINT FOR DECLARATORY JUDGMENT

1. Plaintiff, Audiovox Electronics Corporation, is a corporation incorporated under the laws of the State of Delaware, and has its principal place of business in this district at 150 Marcus Boulevard, Hauppauge, New York, County of Suffolk 11788, (hereinafter, "Audiovox"). Audiovox is a wholly owned subsidiary of Audiovox Corporation, also a Delaware corporation and having the same principal place of business as Audiovox Electronics Corporation.

2. Defendant, Monster Cable Products, Inc., is a corporation incorporated under the laws of the State of California, and has its principal place of business at 455 Valley Drive, Brisbane, California 94005 (hereinafter, "Monster Cable").

3. Jurisdiction of this Court arises under the federal Declaratory Judgment Act, Title 28, United States Code, Sections 2201 and 2202, and under the laws of the United States concerning

actions relating to patents, Title 28, United States Code, Section 1338 (a). This Court has personal jurisdiction over defendant pursuant to the New York Long Arm Statute, C.P.L.R. §302 (a) in that defendant transacts business within the State of New York and within this judicial district.

4. Venue is proper in this district, under Title 28, United States Code, Sections 1391 (b) and (c).

5. Audiovox is a renowned distributor of consumer electronics products, including but not limited to automobile sound systems, home audio/visual products, televisions and accessories, two-way radios, DVD players, automobile navigation systems, automobile security systems and remote starters, audio speakers and speaker wire.

6. Audiovox is distributing in this judicial district electrical speaker wire to connect electronic amplifiers and other audio and home entertainment products to audio loudspeakers under its brand name Acoustic Research, and bearing part nos. PR 262 Pro II Series, PR 220 and PR 221.

7. Monster Cable is distributing in this judicial district audio and visual cables, cable adapters, speaker cables, audio and digital cable connectors and splitters and other consumer electronic products.

8. Audiovox and Monster Cable are competitors in the field of consumer electronic products, and in this instance, audio speaker wire, in this district.

9. Monster Cable has asserted ownership of U.S. Letters Patent No. 4,937,401, which issued on June 26, 1990 to Noel Lee, for "Signal Cable Assembly Including Bundles of Wire Strands of Different Gauges" (Exhibit A attached hereto). This patent expires on January 5, 2009.

10. Monster Cable has asserted ownership of U.S. Letters Patent No. 4,743,712, which issued on May 10, 1988 to Noel Lee, for "Signal Cable Assembly with Fibrous Insulation and an Internal Core" (Exhibit B attached hereto). This patent expired on March 30, 2007.

11. Monster Cable has asserted ownership of U.S. Letters Patent No. 4,910,360, which issued on March 20, 1990 to Noel Lee, for "Cable Assembly Having an Internal Dielectric Core Surrounded by a Conductor" (Exhibit C attached hereto). This patent expires on January 5, 2009.

12. Monster Cable has asserted ownership of U.S. Letters Patent No. 4,777,324, which issued on October 11, 1988 to Noel Lee, for "Signal Cable Assembly with Fibrous Insulation" (Exhibit D attached hereto). This patent expired on March 30, 2007.

13. Monster Cable has asserted ownership of U.S. Letters Patent No. 4,933,513, which issued on June 12, 1990 to Noel Lee, for "Electrical Signal Conductor Assembly" (Exhibit E attached hereto). This patent expires on May 8, 2009.

14. On February 9, 2007, Monster Cable's patent counsel, LaRiviere, Grubman & Payne, sent a threatening ultimatum letter to Mr. Patrick M. Lavelle, President and Chief Executive Officer of Audiovox Corporation, accusing Audiovox of infringing one or more of Monster Cable's aforementioned patents, namely, U.S. Patent Nos. 4,743,712; 4,777,324; 4,910,360; 4,937,401; and 4,933,513, with respect to Audiovox's Acoustic Research brand speaker wire having part nos. PR 262 Pro II Series, PR 220 and PR 221. The letter demands that Audiovox "cease and desist from further sales of infringing products" (Exhibit F attached hereto).

15. As a result of Monster Cable's accusations of infringement in the ultimatum letter of February 9, 2007 (Exhibit F), Audiovox has and continues to have reasonable apprehension that Monster Cable will file suit for infringement of one or more of the aforementioned Monster

Cable patents.

16. Audiovox has not and does not directly, indirectly, contributorily and/or by inducement infringe any valid and enforceable claim of the aforesaid patents, either literally or under the doctrine of equivalents.

17. There is an actual and continuing justiciable controversy within this district between Audiovox and Monster Cable as to Monster Cable's right to threaten or maintain suit for infringement of one or more of said aforementioned patents, and as to the scope and non-infringement thereof.

18. Audiovox is entitled to a declaratory judgment that it has not infringed, and is not infringing, any valid and enforceable claim of the aforesaid patents.

WHEREFORE, Plaintiff Audiovox Corporation respectfully requests that this Court enter a judgment in its favor and against Monster Cable as follows:

(a) Declaring that Defendant Monster Cable Products, Inc. is without right or authority to threaten or maintain suit against Audiovox or its customers for alleged infringement of U.S. Patent Nos. 4,743,712; 4,777,324; 4,910,360; 4,937,401; and 4,933,513, and that said patents are not infringed by Audiovox or its customers by the making, selling, offering for sale or using any audio speaker wire made, sold or used by Audiovox.

(b) Declaring this to be an "exceptional case" within the meaning of 35 U.S.C. §285 and awarding costs and reasonable attorney fees incurred by Audiovox herein.

(c) Such other and further relief as the Court may deem appropriate.

Respectfully submitted,

AUDIOVOX ELECTRONICS CORPORATION

By: Gerald T. Bodner

Gerald T. Bodner
Federal Bar No. GB-9456
Bodner & O'Rourke, LLP
425 Broadhollow Road, Suite 108
Melville, NY 11747
Telephone: 631-249-7500
Facsimile: 631-249-4508
E-mail: gbodner@bodnerorourke.com

EXHIBIT D

& Payne, LLP

June 8, 2007

Gerald T. Bodner, Esq.
Bodner & O'Rourke, LLP
425 Broadhollow Road, Suite 108
Melville, NY 11747

Re: Audiovox Sales of Acoustic Research Brand Speaker Wire

Dear Mr. Bodner:

This will confirm the understanding we have reached today by telephone. To enable the parties to freely discuss this matter, Audiovox agrees to dismiss the current litigation it filed in the Eastern District of New York against Monster Cable.

We have further agreed that Monster Cable will file no suit in any jurisdiction against Audiovox without providing at least fourteen days written notice. It is of course our mutual desire that litigation will not be advisable or necessary.

Sincerely,

LARIVIERE, GRUBMAN & PAYNE, LLP

Robert W. Payne

cc: Client

LaRiviere Grubman & Payne

Ronald K. Grubman, M.D., J.D.
Of Counsel

Monterey Office:
19 Upper Ragsdale Drive
Suite 200
Post Office Box 3140
Monterey CA 93942
Phone: (831) 649-8800
Fax: (831) 649-8835
www.lgpdlaw.com

San Jose Office:
(408) 294-0660

EXHIBIT E

LaRiviere Grubman & Payne

August 2, 2007

VIA E-MAIL AND US MAIL

Gerald T. Bodner, Esq.
Bodner & O'Rourke, LLP
425 Broadhollow Road, Suite 108
Melville, NY 11747

Re: Audiovox Sales of Acoustic Research Brand Speaker Wire

Dear Mr. Bodner:

This will respond to your letter dated July 25, 2007. We agree that the purpose of withdrawing the complaint was to discuss settlement in a more amicable atmosphere. We have advised you repeatedly that we believe claim 13 of the '360 patent has been infringed, and we have offered to discuss a mutually agreeable license to resolve the matter. We have asked repeatedly for your comments if you do not believe that this claim is being infringed, and to date you have simply denied infringement without explanation. To our mind, it is a straightforward matter of identifying what elements you think are missing and discussing those items.

To that end, we look forward to discussing via telephone the '360 patent. We suggest a telephone conference on Wednesday, August 8 at 2:00 p.m. Eastern time. Dave LaRiviere and I can initiate the call. We will have samples available to look at for purposes of the discussion. Our goal is to first identify what elements you believe are missing and then to go from there.

As for your suggestion that we discuss five patents rather than simply the '360 patent, we are not asserting the other patents against Audiovox, based on the information currently available to us. We do not intend to waste your time or ours in discussing those other patents, therefore. We believe our focus on the '360 patent was amply pointed out not only in the initial correspondence but also by our letters dated May 9, 2007, and July 11, 2007.

Sincerely,

LARIVIERE, GRUBMAN & PAYNE, LLP

Robert W. Payne

RWP:trm

EXHIBIT F

October 22, 2007

LaRiviere Grubman & Payne

VIA E-MAIL AND US MAIL

Gerald T. Bodner, Esq.
Bodner & O'Rourke, LLP
425 Broadhollow Road, Suite 108
Melville, NY 11747

Re: Audiovox Sales of Acoustic Research Brand Speaker Wire

Dear Mr. Bodner:

We have sent you the photographs of the accused Audiovox product and have received no information which would contradict our belief that it contains all the elements at least of claim 13 of the '360 patent.

You mentioned previously another patent with regard to invalidity that was already considered by the patent examiner. We disagree – in accordance with the examiner's conclusion that there was patentable matter in light of the disclosure – that it anticipates the invention. We also note the presumption of validity of the issued patent.

We have invited discussion about licensing arrangements with you but have received no response. In accordance with our June 8 letter, therefore, we advise you that we will not feel bound to refrain from filing suit after November 5, 2007, if there is no further progress in our discussions.

We also enclose for your review US trademark registration no. 1,647,907. It appears to us that the Audiovox products infringe this trademark as well, in having a pair of stranded, twisted copper conductors enclosed by transparent cylindrical insulation.

We hope we can engage in meaningful licensing negotiations from this point forward, and would welcome your comments in that regard.

Sincerely,

LARIVIERE, GRUBMAN & PAYNE, LLP

Robert W. Payne

Enclosure
cc: Client

EXHIBIT G

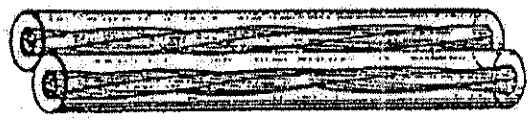
Int. Cl.: 9

Prior U.S. Cl.: 21

Reg. No. 1,647,907

United States Patent and Trademark Office Registered June 18, 1991

TRADEMARK
PRINCIPAL REGISTER



MONSTER CABLE PRODUCTS, INC. (CALIFORNIA CORPORATION)
101 TOWNSEND STREET
SAN FRANCISCO, CA 94107

FOR: ELECTRICAL SIGNAL TRANSMITTING CABLES, IN CLASS 9 (U.S. CL. 21).

FIRST USE 11-3-1978; IN COMMERCE 11-3-1978.

THE LINING IN THE DRAWING IS FOR SHADING PURPOSES ONLY.

THE MARK CONSISTS OF A PAIR OF STRANDED COPPER CONDUCTORS EACH TWISTED INTO A ROPE LAY AND ENCLOSED BY TRANSPARENT CYLINDRICAL INSULATION.

SEC. 2(F).

SER. NO. 73-696,103, FILED 11-18-1987.

MARY FRANCES BRUCE, EXAMINING ATTORNEY

EXHIBIT H

United States Patent [19]

Lee

[11] Patent Number: 4,734,544

[45] Date of Patent: Mar. 29, 1988

[54] SIGNAL CABLE HAVING AN INTERNAL DIELECTRIC CORE

[76] Inventor: Noel Lee, 47 West Park Dr., Daly City, Calif. 94015

[21] Appl. No.: 925,809

[22] Filed: Oct. 29, 1986

[51] Int. Cl.[4] H01B 7/08

[52] U.S. Cl. ..... 174/117 F; 174/113 C; 174/115; 174/131 A

[58] Field of Search ..... 174/113 C, 131 A, 117 R, 174/117 F, 115

[56] References Cited

U.S. PATENT DOCUMENTS

1,211,153	1/1917	Hochstadter	174/115
1,727,971	9/1929	Ford	174/112
2,302,839	11/1942	Burgett	174/113 C
2,455,773	12/1948	Johnson	174/117 R
2,978,530	4/1961	Braeckman	174/34
3,102,160	8/1963	Cook et al.	174/34
3,261,907	7/1966	Morrison	174/115
3,355,544	11/1967	Costley et al.	174/106 R
3,602,632	8/1971	Ollis	174/36
3,758,704	9/1973	Naud	174/115 X
3,772,454	11/1973	Donecker et al.	174/115 X
3,815,054	6/1974	McClure et al.	174/113 R X
4,131,757	12/1978	Felkel	174/107
4,158,185	6/1979	Dageforde et al.	174/113 R X
4,250,351	2/1981	Bridges	174/106 R
4,449,012	5/1984	Voser	174/117 F X
4,486,623	12/1984	Floppa	174/113 C X
4,538,023	8/1985	Brisson	174/115

FOREIGN PATENT DOCUMENTS

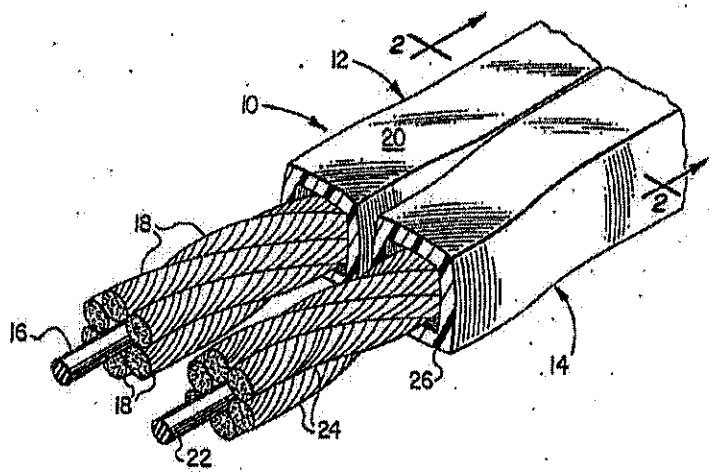
2306386	8/1974	Fed. Rep. of Germany	174/117 F
572618	11/1923	France	
834353	11/1938	France	174/117 F
1366343	12/1964	France	174/117 F
592492	5/1959	Italy	174/131 R
2049262	12/1980	United Kingdom	

Primary Examiner—Morris H. Nimmo
Attorney, Agent, or Firm—Warren B. Kice

[57] ABSTRACT

A cable in which a dielectric core is surrounded by a plurality of bundles of wire strands with the wire strands forming each bundle being twisted in a first direction and the bundles being twisted around the solid conductor in a direction opposite the first direction. Insulation means extend around the bundles of wire strands. A pair of cables configured in the above manner are provided to carry the positive and negative signals between a power source and a load.

1 Claim, 2 Drawing Figures



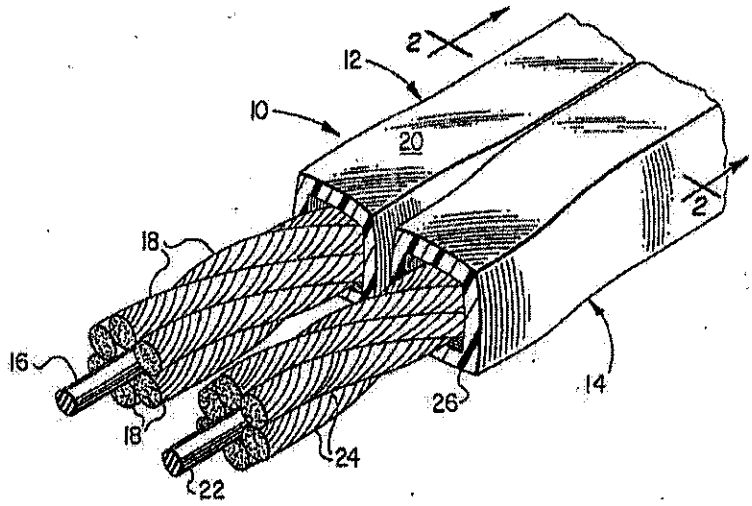


FIG. 1

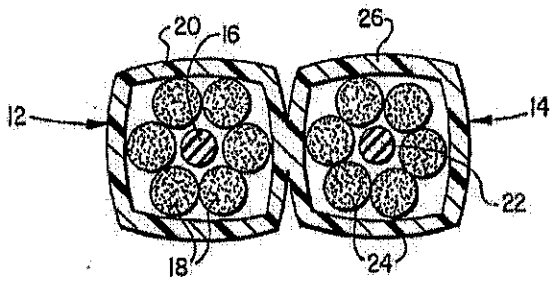


FIG. 2

SIGNAL CABLE HAVING AN INTERNAL DIELECTRIC CORE

BACKGROUND OF THE INVENTION

This invention relates to a cable and a cable assembly, and, more particularly, to a cable and a cable assembly for transmitting an electrical signal between a power source and a load.

Various types of cables have been used to transfer electrical current, in some form of signal, between a power source and a load. For example, the signal from an audio amplifier is transmitted by a cable to a loudspeaker for producing a replica of a signal from a program source that is introduced to the amplifier. However, there is much controversy as to the optimum type of cable that should be used in this environment.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a signal cable in which a plurality of bundles of wire strands are provided which carry the signal and which surround a dielectric core.

It is a further object of the present invention to provide a signal cable of the above type in which the bundles of wire strands are twisted into a rope-lay configuration and wrapped around the dielectric core.

It is a still further object of the present invention to provide a cable assembly formed by two cables of the above type which is relatively flexible and thus easy to handle and install.

Toward the fulfillment of these and other objects, the cable of the present invention includes a plurality of bundles of wire strands, twisted into a rope-lay configuration, wrapped around a dielectric core and disposed within an insulation.

DESCRIPTION OF THE DRAWINGS

The above brief description, as well as further objects, features and advantages of the present invention will be more fully appreciated by reference to the following detailed description of the presently preferred but nonetheless illustrative embodiment in accordance with the present invention when taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a partial perspective view depicting a signal cable of the present invention, with the insulation portion of the cable being removed from the end portions thereof for convenience of presentation; and

FIG. 2 is a cross-sectional view taken along the line 2—2 of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring specifically to the drawings the reference numeral 10 refers in general to the signal cable assembly of the present invention which comprises a first cable 12 extending in a juxtaposed, parallel relationship to a second cable 14.

The cable 12 is formed by a central, solid, rod-like dielectric core 16 surrounded by a plurality of bundles 18 of wire strands. The bundles 18 are twisted about the core 16 and, as shown by the curved lines, the wire strands forming each bundle 18 are twisted in a direction opposite that of the direction of twist of the bundles around the core 16.

An insulating sleeve 20 extends around the bundles 18 and is fabricated of an insulating material such as plastic or rubber and has a substantially rectangular cross section.

In a similar manner, the cable 14 comprises a dielectric core 22 which is surrounded by a plurality of bundles 24 of wire strands. The bundles 24 are twisted around the core 22 in a direction opposite to that of the twist of the wire strands forming each bundle. An insulating sleeve 26 extends around the twisted bundles 24.

The cores 16 and 22 are fabricated from a dielectric material such as polypropylene and the wire strands forming the bundles 18 and 24 are of a current carrying material, such as copper. The wire strands are of a relatively thin gauge such as 36 gauge (AWG) and, according to a preferred embodiment, are formed into six bundles with each bundle consisting of approximately forty-eight strands. The wire strands of each bundle are wound approximately one turn per inch and the bundles 18 and 24 are wound approximately three turns per inch around their respective cores 16 and 22. As shown in FIG. 2 the sleeves 20 and 26 are disposed in a juxtaposed parallel relationship with their corresponding sidewall portions being molded together.

In FIG. 1, the insulating sleeves 20 and 26 of the cables 12 and 14, respectively, have been removed from the end portions of cables to show the uninsulated end portions of each cable which are connected to a power source and/or load. One of the cables 12 or 14 can carry the positive signal and the other can carry the negative signal with the respective uninsulated ends of each cable being connected, via conventional connectors, such as spade lugs, banana plugs, or the like, to the positive and negative terminals of the power source and load. The bundles 18 thus together function as one conductor and the bundles 24 function together as one conductor, it being understood that, since the dielectric cores 16 and 22 are nonconductive they are not connected to the power source or load.

As an alternative embodiment, in order to reduce costs the dielectric cores 16 and 22 can be replaced by a wire or conductor surrounded by insulation and nonterminated as discussed above.

Several advantages result from the foregoing. For example, by virtue of the opposite twisting of the wire strands forming each bundle and the bundles themselves in combination with the dielectric core, a cable is provided which is flexible and easy to handle and install.

Other modifications, changes and substitutions are intended in the foregoing disclosure and, in some instances, some features of the invention can be employed without a corresponding use of other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention therein.

What is claimed is:

1. A signal cable assembly comprising:

a first cable adapted to carry the positive signal between a power source and a load, said first cable comprising:

an elongated, uninsulated, rod-like solid dielectric material;

a plurality of bundles of wire strands of conductive material twisted around said dielectric material for collectively carrying said positive signal, the wire strands forming each bundle being twisted in a first direction and the bundles being twisted around said dielectric material in a direction opposite said first direction; and

insulation means extending around said bundles of wire strands; and

a second cable adapted to carry the negative signal between said power source and said load, said second cable comprising:

an elongated, uninsulated, rod-like solid dielectric material;

a plurality of bundles of wire strands of conductive material twisted around said dielectric material for collectively carrying said negative signal, the wire strands forming each bundle being twisted in a first direction and the bundles being twisted around said dielectric material in a direction opposite said first direction; and

insulation means extending around said bundles of wire strands;

said first and second cables being disposed in a juxtaposed parallel relationship with their respective insulation means molded together.

* * * * *